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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,098	07/11/2001	Natsuko Shiota	44239-082	8100

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EXAMINER

DESIRE, GREGORY M

ART UNIT PAPER NUMBER

2625

DATE MAILED: 07/29/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/902,098

Applicant(s)

SHIOTA, NATSUKO

Examiner

Gregory M. Desire

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 10 is/are allowed.
- 6) ☒ Claim(s) 1, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 2-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/7/11/01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Souma et al (6,345,109) in view of Fukui et al (6,466,685).

Regarding apparatus claim 1 Souma discloses,

Calculating section (which read on fig. 2 block 210) for performing principle component analysis on a set of face images (note fig. 2 block 201) having various types of shades to generate an eigen space (note col. 5 lines 6-15, principal component analysis section receives input from a sample of face images having array of intensity values (examiner interprets as various types of shades), the section generates an eigen space (eigen values and eigenvectors);

Storing section for storing the eigen space generated by said calculating means (note col. 5 lines 26-27, eigen space stored in memory).

Input section for receiving as an input a new face image (note fig. 2 block 250 in connection with col. 5 lines 27-28, examiner interprets test input as input section for receiving a new face image);

Projecting section for projecting the face image input through said input section to the eigen space store in said storing section (note col. 5 lines 32-35, lines cite test image projected into eigen space).

Souma discloses a production section for producing a face image, based on the face image input through said input section and the image projected by said projecting section to the eigen space (note col. 5 lines 28-31, calculated distance is a product of face image input through said input section and the image projected by said projecting section to the eigen space). However, Souma does not disclose producing a face image with shade component removed. Fukui discloses a face image with shade component removed correctly recognizing face patterns (note col. 3 lines 59-61 and col. 11 lines 1-7 and 15-21 and col. 13 lines 6-15). Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to include shade component removal in the system of Souma. Correctly recognizing a face image would have been a highly desirable feature in the face recognition art due to its processing function and Fukui recognizes that recognizing a face correctly would be expected when the removal of shading of Fukui is included in Souma.

Regarding apparatus claim 7 Souma discloses,

Calculating means (which read on fig. 2 block 210) for performing statistical processing on a set of images (note fig. 2 block 201) having various types of shades, for calculating a prescribed image space (note col. 5 lines 6-15, principal component analysis section performs statistical processing and receives input from a sample of

having an array of intensity values (examiner interprets as various types of shades), the section generates a prescribed image space (eigen values and eigenvectors, prescribed image space);

Storing means for storing the image calculated by said calculating means (note col. 5 lines 26-27, image space stored in memory).

Input means for receiving as an input a new face image (note fig. 2 block 250 in connection with col. 5 lines 27-28, examiner interprets test input as input section for receiving a new image);

Projecting means for projecting the image input through said input means to the image space store in said storing means (note col. 5 lines 32-35, lines cite test image projected to the image space).

Souma discloses a producing means for producing an image, based on the image input through said input means and the image projected to the image space by said projecting means (note col. 5 lines 28-31, calculated distance is a product of image input through said input section and the image projected by said projecting section to the image space). However, Souma does not disclose producing an image with shade component removed. Fukui discloses a face image with shade component removed correctly recognizing face patterns (note Fukui, col. 3 lines 59-61 and col. 11 lines 1-7 and 15-21 and col. 13 lines 6-15). Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to include shade component removal in the system of Souma. Correctly recognizing a face image would have been a highly desirable feature in the face recognition art due to its processing

function and Fukui recognizes that recognizing a face correctly would be expected when the removal of shading of Fukui is included in Souma (note Fukui col. 3 lines 59-61).

Regarding apparatus claim 8 Souma and Fukui discloses,

Wherein the images having various types of shades included in said set and the image input through said input means represent subjects of the same type (note Souma col. 4 lines 56-65, images of various types and image input through said input mean, represent the same type of faces).

***Allowable Subject Matter***

3. Claims 9-10 are allowed.

4. The following is an examiner's statement of reasons for allowance for independent claim 9. The prior art fails to disclose the claimed method. All the features are necessary and critical to removing a shade component. Specifically the feature of forming a shade component removed space having a lower order component and subtracting difference between dictionary image and removal image to generate a face image with shade component removed. These limitations in combination with other limitations are not taught in the prior art.

Claim 10 depends on claim 9. Therefore are also allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 2, the prior art fails to disclose the claimed calculated section. All the features are necessary and critical to the apparatus for removing a shade component. A calculation performing face extracting section, mean shape calculating section, mean shape transforming section and principle component analyzing section in combination with other limitations are not taught in the prior art. Claims 2-6 are dependent on claim 2, therefore are also objected.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory M. Desire whose telephone number is (703) 308-9586. The examiner can normally be reached on M-F (8:30-6:00) Second Monday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gregory M. Desire  
Examiner  
Art Unit 2625

G.D.  
July 25, 2004